ESS Midterm Exam
Winter Quarter, 2010
Due: Tuesday, Feb. 1 by 6pm
Time Limit: 2 hours
Closed Book, Closed Notes

Check with your seminar faculty on how to submit your exam as each faculty has different preferences. Options: bring hardcopy to class Feb 1, put electronic copy in your cubbies folder, email to faculty, upload to Moodle.

Concepts: You will be asked to define and explain the significance of concepts covered during the first four weeks of the quarter. Write in complete sentences. While each concept or question could command several pages of response, your answers cannot exceed five sentences each, probably less than 100-125 words. Therefore you must think carefully and refine your understandings to create concise answers.

Read Carefully: Download the exam just before the two hours during which you plan to work on it. You are on your honor to follow the guidelines: closed book, closed notes, no collaboration with others, closed internet (i.e., no looking things up on the internet), two hour time limit. Please sign (or type "I attest that") and date the statement that you have complied with these guidelines at the end of the document!

Word-process your exam in single space in 12-font and full margins top, bottom, left and right. Be sure to double-space before starting to answer a question, and leave a double-space at the end of your answer before proceeding to the next question. Make sure to be clear about which concept/question you are answering! Complete the exam in the same order as it appears in the document. Work alone on the assignment. **You will answer four questions from each faculty: one required question and then a choice of three from the remaining faculty list. Do not answer any more than 4 concepts/questions per faculty!**

Judy's Concepts

1. Scientific Theory **(required)**
2. Scientific Model
3. Inference and Deduction (in particular how these relate to science)
4. Conservation, Release, Reorganization, Exploitation
5. Scientific Models and Policy
6. While home during winter break, your Uncle Pete started a discussion about global climate change, which went something like this: "Global warming is just a hypothesis, that scientists seem uncertain about. Furthermore, there's talk of a coming Ice Age, and it's been awfully warm lately. All this means we should not pay any attention to all the hoopla." How might you use your

understanding of science “vs.” pseudoscience to discuss this issue with your uncle, or at least to keep other family members from swallowing his arguments?

7. Stock-and-Flows. Below is Figure 2 from Week 3’s reading: “Effect of aquaculture on world fish supplies” (R. L. Naylor, et al*, Nature* 405, 1017-1024, 29 June 2000). List all items that appear in the figure (e.g., Aquatic Production Base, Capture Fisheries, Bycatch, Feed, etc.), and indicate whether each item is a stock or flow (or neither). Also answer: What is the major stock of interest? What major the feedback loop(s) affect its size?

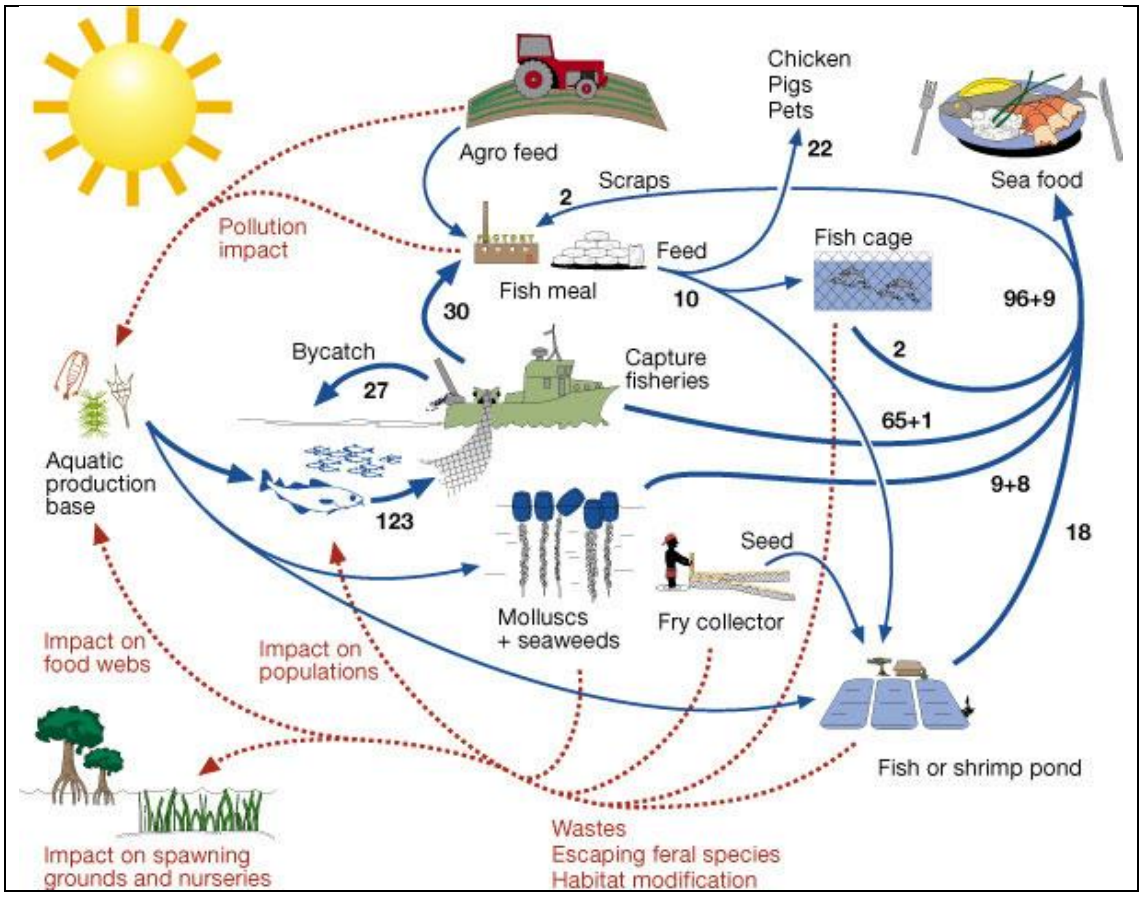
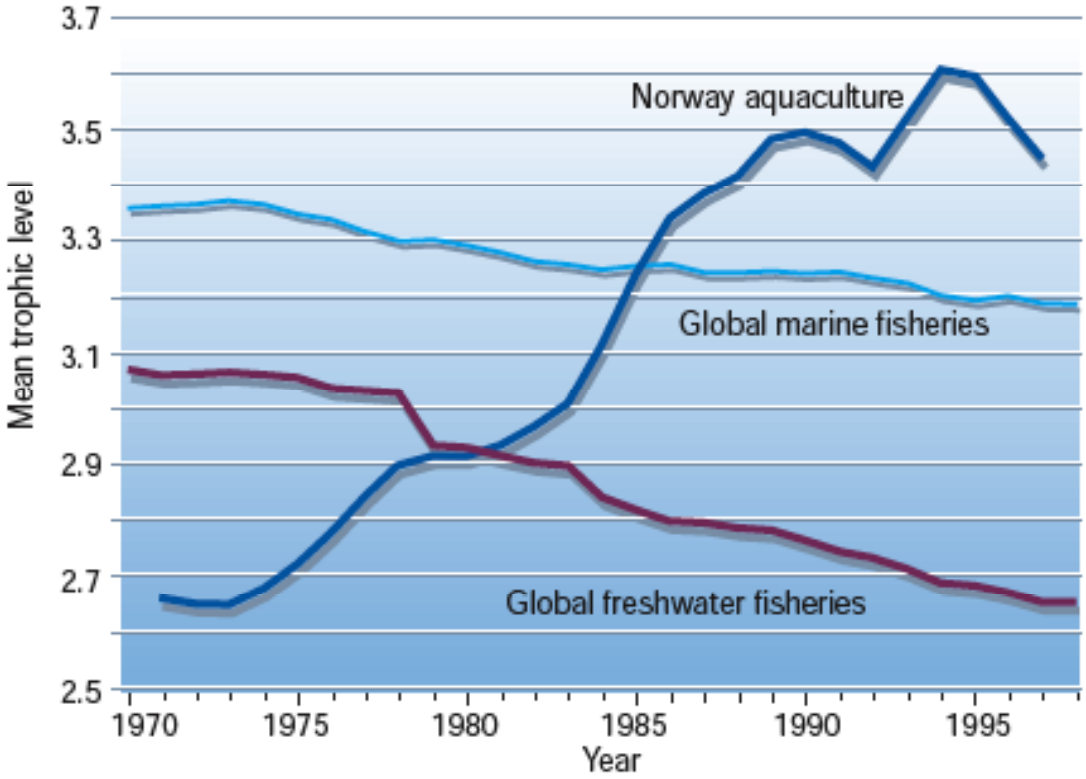


FIGURE 2. Ecological links between intensive fish and shrimp aquaculture and capture fisheries.

Gerardo’s Concepts

1. ENSO **(required)**
2. Fishing Down the Food Chain
3. Net and Gross Primary Production
4. By-catch
5. Limiting Nutrients
6. Coastal Productivity (Estuaries and Upwelling Regions)



7. Interpret this figure explaining why these trends reflect degradation of aquatic ecosystems.

Ralph's Concepts

1. Malthusian Scarcity vs. Economic allocation **(required)**
2. U.S. vs. Washington State: *Reasonable and Necessary*
3. Four H's
4. Market Failures (define the concept & list all 6)
5. MSY, OY and EY
6. Habitat (nature) as an input to Salmon (a natural resource)

I, _____, have neither given nor received help on this exam, and completed the work within the two hour time limit. I have followed the guidelines: closed book, closed notes, closed computer, no collaboration with others.

Date/Time: _____